

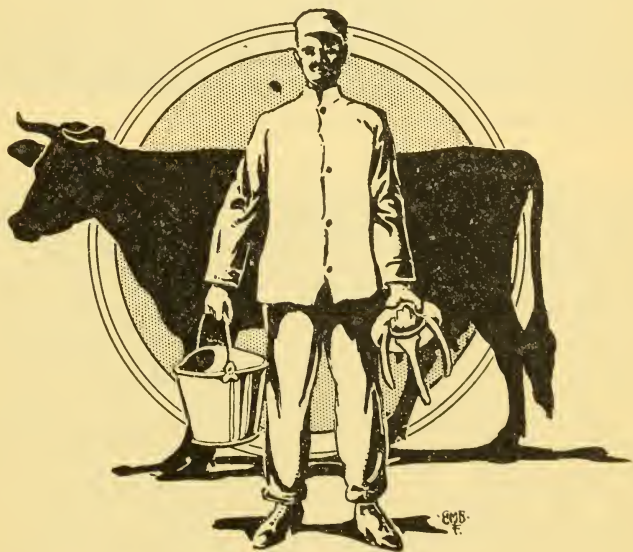
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# IMPROVED SANITATION IN MILK PRODUCTION



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# IMPROVED SANITATION IN MILK PRODUCTION

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The need for improved methods in producing milk becomes greater as older cities grow larger, younger cities develop, and towns spring up here and there. As the market-milk producing districts are widened, milk must be transported greater distances and handled in larger quantities. It must be produced properly to withstand this treatment. Furthermore, there is an increased demand for clean milk on the part of the consumer, and health officials are requiring that improved sanitary methods be used in its production. Unless care is taken in producing it, therefore, great losses may result from the rejection of milk by dealers or health departments and from the lessened demand for low-grade milk. When these facts are considered, together with the realization by the public of the value of milk of high quality as a food, especially for the growing child, it is seen that a load of responsibility is placed squarely on the shoulders of the milk producer.

On the other hand, this responsibility is not so burdensome as it would have been years ago, for there is a clearer understanding of how to produce clean milk. Out of the experiences of successful dairymen and the experiments of investigators has gradually developed a simplified knowledge of this subject. By observing certain precautions clean milk can be produced with very little more effort than milk which is not clean.

## Produce Milk From Clean, Healthy Cows

Milk, in order to be clean, must first of all be from healthy cows. They should not only appear healthy but should be free from tuberculosis as shown by the tuberculin test administered by a competent veterinarian at least once each year. Milk from a cow with an infected udder or milk which is stringy or abnormal should never be used.

Once it is determined that cows are healthy, pains should be taken to clean them thoroughly before they are milked. They should be curried or brushed regularly. If the hair on the udder, belly, and flanks is closely clipped it will be found much easier to keep the cows clean. Before they are milked these parts should be wiped with a clean, damp cloth. When they are badly soiled they should be washed with clean water before being wiped. (Fig. 1.) This takes only a few moments and is a valuable aid in preventing bacteria from being carried into the milk by falling hair, dandruff, and dust particles. Since bacteria cause milk to sour they should be kept out of it by every possible means.

Cows may be kept healthy and less labor is required to keep them clean if plenty of sunlight and ventilation are supplied in the barn, if water-tight floors and gutters are provided, and if the yards are well drained and kept free from manure. One need not feel discouraged, however, if he does not have an expensive barn, as clean milk can be produced in a barn of cheap construction if careful methods are used. But as a rule the better the barn the easier it is



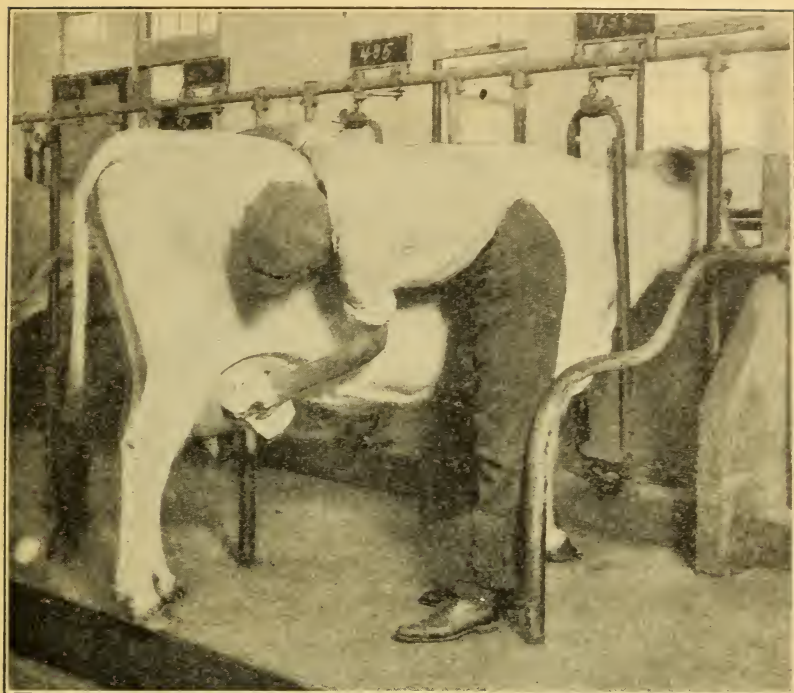


FIG. 1.—Wiping teats, udder, and flanks of a cow with a clean, damp cloth

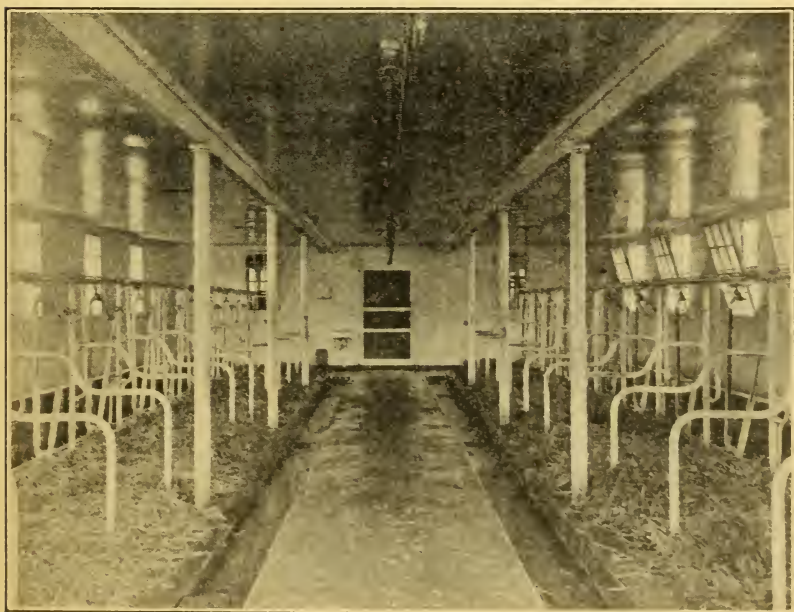


FIG. 2.—Interior of a modern dairy barn

to produce clean milk. Figures 2 and 3 show the interior of two types of dairy barns where clean milk is produced. Figure 2 is a modern type of dairy barn; figure 3 is an older, cheaper type but equipped with plenty of windows and with concrete floors.

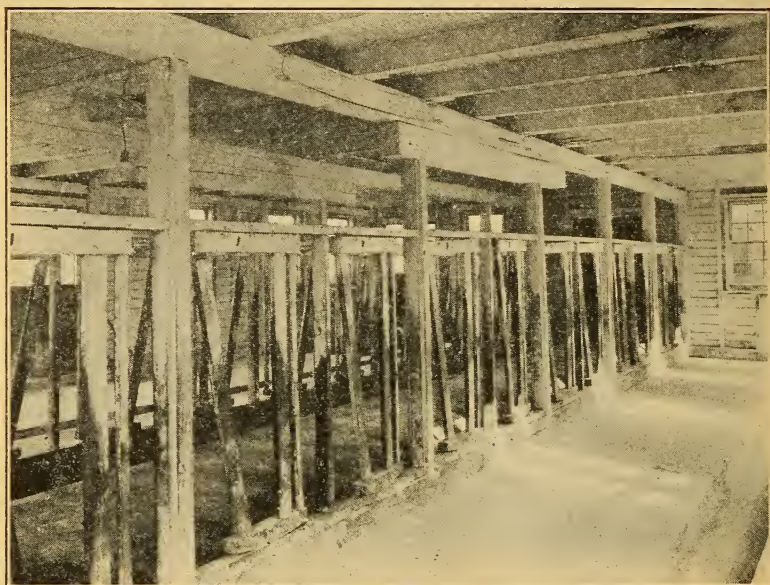


FIG. 3.—Interior of an older, cheaper dairy barn

### Milkers Should be Clean and Healthy

Only healthy people should be employed in a dairy. The wise dairyman takes no chances with infectious or contagious diseases.

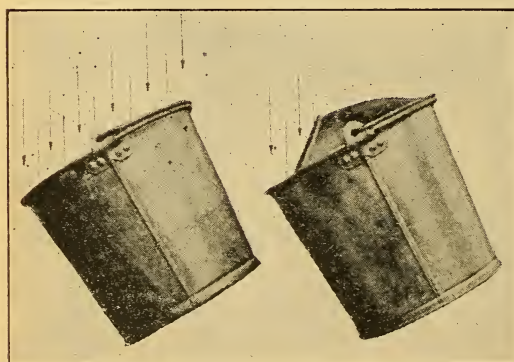


FIG. 4.—Why the small-top milk pail is preferable to the ordinary pail

Milkers and milk handlers should wear clean clothing. Overalls or other suitable clothing should be provided for use only during milking, and this clothing should be washed frequently.

Milking should be performed with clean, dry hands. Wet-hand milking is a filthy habit and contaminates the milk. The milking stool should be kept in a clean

place and should be washed occasionally to prevent its soiling the hands of the milkers.





FIG. 5.—An economical dairy house connected with the barn by a well-ventilated passageway

### Use Small-Top Pails

Up-to-date, clean dairies use small-top milk pails (fig. 4), as they keep a large part of the falling hair and dirt out of the milk. They are easy to use, cost little more than ordinary pails, and are one of the most valuable aids in keeping bacteria out of milk. They help to carry out the plan of keeping dirt out of milk instead of straining it out.

### Take Special Care of Strainers

It is usually necessary to strain milk so that no foreign objects are contained in it when sold. Straining may improve its appearance but does little more as most of the bacteria on the sediment are washed off in the milk. The strainer itself may be a source of much contamination unless proper care is taken of it. Strainer pads or cloths should never be used unless they have been sterilized. If used more



FIG. 6.—Milk utensils in a sterilizing cabinet ready to be steamed

than once the best plan is to wash them immediately after use, boil them, and hang them in a protected place where they will dry quickly.

### Protect the Water Supply

Every dairyman should be certain that he has a pure, safe water supply. Wells and springs should be walled in, tightly covered, and protected from surface drainage by ditches. Wells should be located on the highest available ground.

### Provide a Separate Dairy House

A separate dairy house or milk room should be provided. (Fig. 5.) Milk to be sold should never be handled in a dwelling as there is too much chance of dangerous contamination in case sickness occurs in the family. The milk room should be on the windward side of the barn and near it so that each pail of milk can be easily cooled as soon as it is drawn. It may even be connected with the barn by a covered passageway. It should, however, be at a distance from the yards and manure piles. The dairy house should consist of at least two rooms so that the milk will not be handled in the room in which the utensils are washed or where the boiler is located.

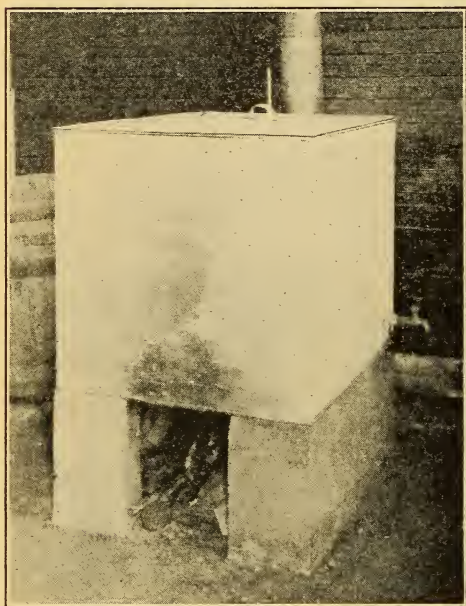


FIG. 7.—A galvanized-iron box sterilizer and water heater

### Sterilize the Milk Utensils

Milk utensils which are not properly washed and sterilized may be the greatest source of milk contamination.

Therefore, they should be rinsed inside and outside with lukewarm or cold water as soon as possible after use. They should then be placed in a wash vat, scrubbed with a brush in warm water containing a soda ash or alkaline washing powder (not soap), rinsed, placed in a sterilizing cabinet, and thoroughly steamed. (Fig. 6.) A sterilizer which is operated with steam from a boiler is most satisfactory for the majority of dairies. Small retail and medium-sized wholesale dairies which do not have steam boilers may, however, make satisfactory use of a galvanized iron-box sterilizer. (Fig. 7.) This kind of sterilizer is placed on a foundation which serves as a firebox or on some other heating unit. The utensils are placed over a small quantity of water in the bottom of the sterilizer and steamed. This box may also be used as a water heater.



After being steamed milk utensils should either be left in the sterilizer until used or be inverted on a rack, preferably in the sun in a place as free from dust as possible.

If a milking machine is used special care should be taken in cleaning and sterilizing it. It should be cleaned with special brushes, warm water, and washing powder each time it is used. Milking-machine rubber parts and small metal parts may be satisfactorily sterilized by placing them in water which is heated to 165° F. and left there until the next milking. Full particulars on this subject may be procured by writing to the United States Department of Agriculture for Farmers' Bulletin 1315, *Cleaning Milking Machines*.

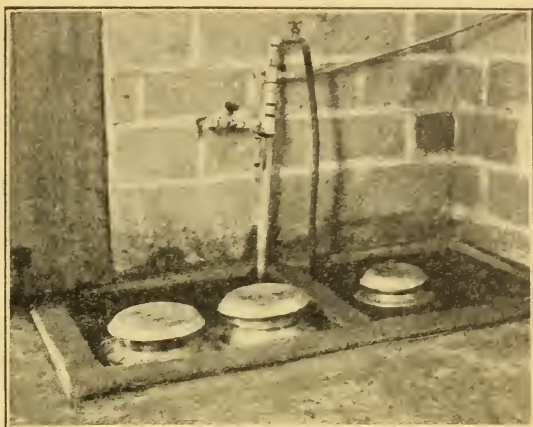


FIG. 8.—Keeping cans of milk cold in a cooling and storage tank with ice water or cold running water

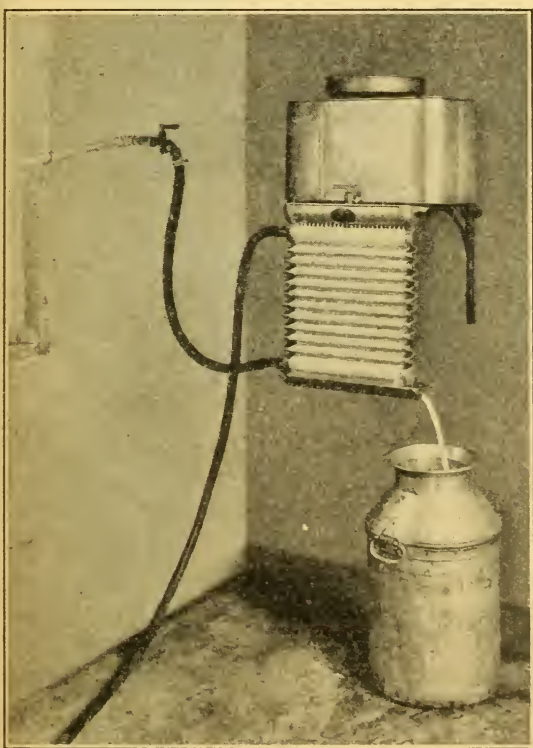


FIG. 9.—Cooling milk quickly with running water or ice water by means of a surface cooler

### Cool Milk and Cream Quickly

The best way to prevent multiplication of bacteria which unavoidably get into milk is to cool the milk as soon as possible after it is produced and keep it cold. Bacteria are tiny single-celled plants, which, like most other plants, require warmth if they are to grow. If milk is cooled to 50° F. or below and held at that temperature, bacterial development is very much retarded.

The milk room should be equipped with a cooling and storage tank through which cold water may be run around the milk cans (Fig. 8) or with a surface cooler through which some cooling medium may be run. (Fig. 9.) If cold

running water is not available, ice should be used either in the tank or to cool the water in the surface cooler. Large dairies find it more economical to use artificial refrigeration.

### Keep Milk and Cream Cold During Transportation

Milk and cream should not only be kept cold until they leave the farm, but they should also be protected from the sun and warm air while being transported from the farm to the city. Milk stands at the roadside should be shaded, and cans of milk and cream hauled in trucks or wagons should be covered with a canvas. If this is not done, much careful work performed in producing the milk may be wasted. Heavy jackets for milk cans, which aid materially in keeping the contents cold, may be purchased from dairy-supply firms.

### Fight the Flies

Flies are a nuisance of the worst kind in a dairy since they breed in filth and carry many bacteria which may contaminate the milk with disease organisms. They should be discouraged by ridding the premises of manure, which is their favorite breeding place, and by trapping and poisoning them. If the yards are kept free from refuse and manure flies may be more easily controlled.

### Summary

To improve the milk supply it should be produced under sanitary conditions, which include clean, healthy cows; clean, healthy milkers; and sterilized small-top pails or sterilized milking machines. Milk should be cooled quickly to 50° F. or below over sterilized equipment and kept cold in a sterile container until sold. If a milking machine is used, special precautions should be taken in washing and sterilizing it.





